

NOAA California B-WET Program Project Evaluation Report Review 2007-2008

Overview

We have been working with California B-WET grant recipients to build their capacity to understand what program evaluation is and how to facilitate the evaluation of their projects. We've taken this approach because of the variety of goals, audiences and educational approaches represented by California B-WET projects.

This is the first year that recipients have submitted evaluation reports. We reviewed their reports and provided them with feedback. We have also summarized them in a matrix that follows. Grant recipients are not professional evaluators, nor do they have such a resource on staff (although we encouraged the hiring of such expertise). As expected, a few of the reports are excellent and many of them have issues. Some issues are related to the evaluation design, its execution, the analysis of data or the report itself. We view this process as a learning opportunity for grant recipients, as well as the B-WET program.

A single reviewer (Chris Parsons of Word Craft) read through all 30 of the submitted evaluation reports and commented directly on them so the comments could be returned to those who submitted reports. The matrix is a summary of the evaluation reports and the reviewer's comments. The reviewer did not use a rubric or other tool to formally assess the reports. She used her judgment based on current evaluation practice and experience conducting similar evaluations for the past 25 years. (We may consider developing a rubric for formal review in the future.)

Summaries of the most complete and useful reports are listed first in this matrix (pages 2 to 5). They are followed by summaries of the remaining reports in alphabetical order by project name. In the matrix, double question marks (??) indicate what the reviewer believes to be correct, but was unsure of because the evaluation report wasn't clear, i.e., they conducted a focus group(??) or they received 30?? post surveys. Also, comments in [brackets] are those of the reviewer and are used primarily when offering side notes on methods or findings.

Summary of Results

Nearly all (93%) of the evaluations focused on collecting content/knowledge data and more than half (60%) collected attitude data, mostly satisfaction with the project experience(s). A few (23%) collected data on behaviors or actions, including teachers use of materials, store clearks use of pesticide information and students' conservation actions. About 13% asked about students' interests in related careers and two programs assessed students' skills, one observed planting skills and the other tour-guiding skills.

Based on reports that used statistical tests for significant changes on paired pre/post-test (and some that only provide percentage changes), California B-WET programs in 2006-2007 produced statistically significant increases in students' knowledge about local watersheds and marine sanctuaries and in students' enjoyment in learning about the ocean and protecting the ocean. Analysis of data did not show statistically significant changes in students' conservation actions/behaviors.

Based on reports that provided paired pre/post-test changes (but did not use statistical tests), California B-WET programs showed increases in students' and teachers' ability to identify the ways watersheds and the ocean become polluted and ways to prevent their pollution.

Most reports indicated that program participants (students, teachers and other community members) were satisfied with the B-WET program that they received.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Earth Island Kids for the Bay (KftB) DONE	40 teacher & 1200 student participants BWET funds: 12 teachers, 360 students Eval: pre/post teachers = 25 of 40 Eval form: BWET teachers 11 of 12 Students, n = 200 4 th grade students, + n = 70 Sanctuary item Families [??]	<ul style="list-style-type: none"> Time Period: Aug. 2006 –July 2007 (school year) Program includes five two-hour in-school workshops and a full-day field trip to a local habitat; plus each class selects a watershed project Evaluation to measure impact, effectiveness of teaching (satisfaction), also effectiveness of eval tools 	<ul style="list-style-type: none"> Evaluator: in house?? Pre/post survey of teachers Eval form to B-WET teachers Pre/post survey to students 	<ul style="list-style-type: none"> Goals met: program provided meaningful watershed experiences for elem students and PD for teachers. [This is output measure, not outcome.] On post, 56% of teachers felt more comfortable using local watershed environment as a learning resource, 52% more comfortable teaching EE, 40% more comfortable leading outdoor field trip & 44% more comfortable leading an action project. Most [all] teachers expressed satisfaction with, enjoyment of and appreciation of program. Lots of suggestions on what works & what needs improvement [too much for B-WET, but useful to KftB]. Watershed/Sanctuary data? Pre/post statistically significant increase in students' watershed knowledge and students' knowledge of marine sanctuaries.
Carmel Unified Middle School DONE	Content test n = 51 6 th graders n = 18 7 th graders n = 16 8 th graders Action item survey n = 85	<ul style="list-style-type: none"> Time Period: 2006 – 2007 schoolyear?? Involved teachers in development of eval [Nice] Measure change in students' knowledge and actions; also eval of process Got teachers' perspective on program & evaluation 	<ul style="list-style-type: none"> Evaluator: Consultant Jane Brown Student pre/post surveys: 10 content items; 10 action items (used many items that we recommended); also 3 open-ended learning questions Teacher focus group 	<ul style="list-style-type: none"> No statistically different change on action items in total. Saw a change on some items and evaluator recommended realigning eval items with program content. Watershed/Sanctuary data? Statistically significant gains on watershed content test for all grades.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Camp Sea Lab DONE	teachers & their students Students n = 436, with 309 paired No teacher data	<ul style="list-style-type: none"> Time Period: spring 2005 & spring 2006 Compares year to year and different demographic groups (gender, grade, ethnicity) Reported 2005 data [I didn't include in this summary] 	<ul style="list-style-type: none"> Evaluator: American Institute for Research (AIR) and grad students Pre/post surveys, some paired and some not?? Journals Informal interviews Adult feedback 	<p>Student Surveys</p> <ul style="list-style-type: none"> Positive pre/post paired results are significant for: I like learning @ the ocean; Studying ocean is fun; I want to protect the ocean. Marginal sig. change: Studying the ocean is important. No significant change for: Good at science; I want to study science in school. Found some gender, ethnicity and grade differences. Camp seems to have a greater impact on younger students. Some change regarding wanting to go to college, however students were high from the start. Less than 50% said program helped them think about a career and qualitative data showed no impact on career aspirations. Generally, program doesn't seem to impact actions students can take to help the ocean. Students learned new vocabulary and about specific species. Kids liked most: had fun, made friends <p>Journals, Informal interviews, Adult feedback</p> <ul style="list-style-type: none"> No data <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> No data

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
MERITO MB DONE	Teachers n = 17 pre; n = 13 post 1 & 2 Students n = 164 (pre/post matched)	<ul style="list-style-type: none"> Time Period: Aug. 2006 to May 2007 pre-test and two post-test of teachers participating in Watershed Academy leader training (2 or 3 trainings??) pre and post test of 425 students of those 17 teachers; 164 paired and report is based on analysis of paired 	<ul style="list-style-type: none"> Evaluator: Consultant David Dobrowski Pre/post surveys, mostly open-ended questions, some drawings Content analysis and frequencies & percentages reported 	<ul style="list-style-type: none"> Teachers positive @ training (89 to 93% just right) On IDing ELL teaching techniques, teachers changed pre/post from 82% to 100% able to do so. From pre/post, number of techniques IDd changed from 1.3 to 2.35. Students: On pre 50% could not ID science job/career; on post, 66% could. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> Teachers IDd MBNMS's role as protection changed pre/post from 59% to 77%. Pre to post, teachers ID of pollutants changed for soap from 0 to 18%, for garbage from 24% to 42% and number of pollutants IDd changed from 2.3 to 2.8. Students: named .54 more pollutants pre to post. Largest increases for litter/ trash (94 to 134), oil (76 to 101) and feces (21 to 41). Pre to post, using a picture 43% of students IDd more pollutants. Oil and trash most common. 60% on post test identified more activities at home that they could do to protect the ocean, incl. not littering, recycling, not dumping oil, and picking up trash. Students: Pre, 17% drew watershed map; Post, 56%. From pre to post, twice as many students IDd MBNMS role as protection.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
SJSU MLML DONE	mostly middle and high school teachers, n = 19 a few elem teachers teachers and informal eds	<ul style="list-style-type: none"> Time Period: Oct. 2006 to Oct. 2007 Eval Goals: 1) Did participants have adequate backgrounds & classroom environments to implement workshop content; 2) Which aspects of workshop worked & which didn't; How to improve? 3) What did teachers gain from workshop? 	<ul style="list-style-type: none"> Evaluator: in house front end survey and / or interviews formative (daily) & summative (final day) surveys pre / post workshop test of teachers' knowledge planning follow-up in-classroom observations and focus groups 	<ul style="list-style-type: none"> 84% of teachers rated the workshop as excellent compared to other workshops (as compared to 50% in 2006, 67% in 2005, 35% in 2004). Most were satisfied with the format, length, content and enjoyment level. Teachers stated the most useful were the field trips and lab activities. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Can't discern the results based on the way the test data were reported.
Beach Garden Project DONE	Students, n = 250 grades 1-5 & 11-12 Teachers n = 10	<ul style="list-style-type: none"> Time Period: 2006-2007 Focus is on restoration and understanding of Monterey Dunes habitat & connection to the Sanctuary Goals: measure educational, behavioral and technical (planting) skills of students; also satisfaction with program Set specific targets: % will accomplish XX. 	<ul style="list-style-type: none"> Evaluator: in-house 81 of 108 (75%) 5th graders completed pre / post surveys (about 40% of 250). [Paired?] Pre in Aug.-Sept.; post in Mar.-Jun. Students, 2 classes (n = 54) received behavior (stewardship) tests Students, n = 54, were observed re: planting skills (20% for each of 5 skills) Teachers completed a satisfaction survey (returned by 2 of 5 teachers) 	<ul style="list-style-type: none"> Students and teachers seemed satisfied & enthusiastic with program Students' reported environmental behaviors increased by 7% (goal was 10%) Students' planting competency at 80% (goal was 75%) <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Students' dunes knowledge increased by 20% (goal was 25%) Students' watershed pollution knowledge increased by 15 & 18% (goal was 25%) [Need to be cautious about these data due to the way the surveys were analyzed.]

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Anzar High School Pajaro River Watershed DONE	teacher, n = 1 high school students, n = 56	<ul style="list-style-type: none"> Time Period: 8/1/05 to 6/31/06 Mostly self-report data as to how well the program met learning and service goals. 	<ul style="list-style-type: none"> Evaluator: Jennifer Colby teacher interview satisfaction survey of students student focus group (??) 	<ul style="list-style-type: none"> 65% of students (as compared to 55% last year) enjoyed the outdoor experience 40% found great learning in the experience (as compared to 50% last year). Students' grades were lower this year than last year. Students found it challenging connecting the outdoor work to relevance of govt/ civics and their own interests. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> None
Bay Institute STRAW Project DONE	<p>Teachers K-12 (half 3rd-5th) PD n = 46 on Day 1; 37 on Day 2; ?? on Day 3</p> <p>Students, n = 16 classrooms (data from 8, lost data from some), n = 208 students</p> <p>Teachers from 3 of the 16 classrooms kept journals</p> <p>Spring survey of 57 teachers [why not 46?], 14 responded (25% response rate)</p>	<ul style="list-style-type: none"> Time Period: Aug. 2006 to spring 2007 weeklong (3-day) training and 4 follow-up network events?? K-8 Students participate in habitat restoration Pre/Post teacher surveys to determine changes in learning about the function of the delta (46% response rate) Pre/Post student surveys to determine knowledge regarding school's place in watershed. 	<ul style="list-style-type: none"> Evaluator: ?? Teacher pre-workshop survey / teacher post-workshop survey Student pre-test / post-test Student summit presentations (no systematic assessment) and focus group at that event(??) Teacher spring survey [confused about questions, purpose and how it fits] Teacher journals [little data, nor how they were analyzed] 	<ul style="list-style-type: none"> Surveys: Teachers' responses to post open-ended questions showed increase in knowledge and more details as compared to pre, in particular issues related to the Delta and identifying stakeholders. 94% of teachers on Day 2 ranked the field trip as very important [not supported by survey question] <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> More watershed awareness Change from pre to post 20% to 96%, said yes when asked if live in a watershed Of those responding yes, 86% correctly IDd where. Report states that students' learning increased by 64% [not sure how they got this number]

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
CIPE Channel Mappers DONE	Teachers, 5 th – 12 th n = 20 Received data from n = 5 (three HS, 1 MS, and 1 college)	<ul style="list-style-type: none"> Time Period: Sept. 2006 – Aug. 2007 Survey for June '07 wkshp Teacher PD workshops Eval goals: formative questions about workshop and lessons; summative regarding understanding of content, comfort with software, conducting meaningful outdoor experiences, confidence in teaching content to students 	<ul style="list-style-type: none"> Evaluator: Dr. Moore pre & post surveys right before & after two-day workshop online follow-up survey in early Dec. '07 (had problems with some questions so no data) expert review of lessons 	<ul style="list-style-type: none"> Overall, participating teachers were satisfied with the materials & software; however, participation and response rates were low. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Content results based on teachers' rating of their confidence in teaching such content and how they would teach content [weak rating at this stage...wait till they use materials]. Results indicated gains but because they report the change [rather than pre/post responses, so I can't judge how positive the gains were].
Coastal Watershed Council GO! DONE	4 th , 5 th & 6 th graders at Valencia Elem n = 230 pre-tests; n = 202 mid-tests, n = 227 post-tests	<ul style="list-style-type: none"> Time Period: Jun. 2006 - May 2007 Eval goal: measurable increase in student awareness & learning 	<ul style="list-style-type: none"> Evaluator: in house?? pre / mid / post-tests on students also tried to collect data from teachers and Steering Committee In future, they plan to have three different tests – I recommend using same test, but analyze grades separately. 	<ul style="list-style-type: none"> Generally, students did better on water quality test questions pre to post. Saw some positive changes in conservation behaviors from pre to post [but as presented was difficult to easily discern]. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Increase in defining a watershed from 19% correct (pre) to 35% correct (post). Decrease pre to post in ability to <ol style="list-style-type: none"> 1) name three human-caused sources of pollution in watersheds, 2) list three ways we can reduce human sources of pollution and 3) name 5 plants and animals found around a creek.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Ecology Action OWOW DONE	Partners, n = 7 Store managers, n = 18 Store employees, n = 67	<ul style="list-style-type: none"> Time Period: ?? Goal to reduce non-point source pollution by educating adult residents who purchase home & garden pest control supplies & fertilizers Eval goals: program satisfaction, knowledge levels, and formative improvements 	<ul style="list-style-type: none"> Evaluator: Consultant Julie Shattuck Pre-workshop survey of employees; no post-workshop survey due to lack of funding! implementation & satisfaction survey of store managers Jurisdiction partners pre- survey in June 2007; post-survey in ?? 	<ul style="list-style-type: none"> 40% of jurisdiction partners were "very satisfied" and 60% were "exceptionally well satisfied" with 2007 program implementation. Employee pre-survey: mean was 12.85 out of 29 possible points. Included analysis of data based on store characteristics. Few employees were aware of OWOW program or used resources provided. Overall, store managers were satisfied with training, materials and ed events. 67% of store managers reported an increase in sales of less-toxic products in 2007 due to OWOW. <p>Watershed / Sanctuary data? [NOTE: Pre-survey only data]</p> <ul style="list-style-type: none"> Only 18% of employees could name a local watershed in their jurisdiction. 49% of employees identified the positive definition of a watershed The majority of employees (68%) related garden chemical pollution to the human experience of not being able to drink, swim, or fish in polluted water 54% of employees were aware that certain garden chemicals could harm the reproductive success of amphibians, fish, and birds.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Explore New Horizons (ENH) DONE	6 th graders, n = 420	<ul style="list-style-type: none"> Time Period: Sept. '06 - Aug. '07 5-day residential outdoor school incl. monitoring sand crab populations Goal: raise student awareness of natural world and their connection Started as a summative evaluation, but changed to formative assessment of the evaluation process 	<ul style="list-style-type: none"> Evaluator: in house Pre/post artwork (although pre was artwork or essay and so data weren't comparable for post) Rubric measuring individual connection with nature, understanding of environ concepts, impact of program on individuals 	<ul style="list-style-type: none"> Learned more from the eval process than eval of students due to challenge learning how to implement the assessment activity and rubric Data collected provided a disappointing view of students and their experiences: majority of students had not had the experience that had been hoped for. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> None
Farallones FMSA DONE	teacher participants, report is on selection of 2 out of 10 workshop groups: n = 16 in Oct.; n = 7 in Feb. state total n = 23	<ul style="list-style-type: none"> Time Period: Aug. 2006 – July 2007 Evaluate LiMPETS workshops (one in Oct. '06 and one in Feb. '07), in particular teachers' knowledge of intertidal ecology and marine sanctuaries, teachers' satisfaction with workshop, curriculum, networking and marketing 	<ul style="list-style-type: none"> Evaluator: Program Evaluator Marisa Lopez & Advisor Nicole Cheslock pre/post survey of teachers observations of workshops focus group on May 19 of 4 teachers from Feb. workshop. 	<ul style="list-style-type: none"> Objectives met [but stated as outputs, not outcomes, so not valid for evaluation]. Either 28% or 49% of all teachers (depending on which workshops included) implemented LiMPETS after training. No focus group teachers used it this school year [would be good to follow up with those teachers]. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> Pre to post changes: defining a marine sanct. from 48% to 87% correct Open-ended items, pre to post changes: naming two threats to intertidal ecosystem from 33% to 65% correct; naming two physical factors of intertidal from 48% to 74% correct; naming 4 Calif. NMS from 14% to 22% correct.
Golden Gate Park Conserv. & Crissy Field Project Wise DONE	inner city high school students n = 35 (31 completed surveys)	<ul style="list-style-type: none"> Time Period: 2006-2007 academic year Goals: 1) determine if & how students acquire technical skills related to scientific inquiry; 2) verify & substantiate whether 	<ul style="list-style-type: none"> Evaluator: SFSU student & professor as advisor multiple methods: mid-semester student survey; end-of-year student survey; review of previous years' videos and testimonials; observed student 	<ul style="list-style-type: none"> Students said their curiosity was stimulated, they became more comfortable and they learned. "...the core of student learning is not so much in the information, but in the interaction between these youth and the natural

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
		students build personal self confidence & personal awareness @ the environment; 3) explore whether students increase their ability & gain knowledge @ scientific process, and if this contributes to personal empowerment & critical thinking.	presentations [no formal assessment]; intermittent (brief) interview of instructors	environment." <ul style="list-style-type: none"> • "...the imagination being developed in these young minds may, in fact, be more important than technical precision." • Field trips were integral to students' learning. • Students said they gained an increased awareness of the Presidio, National Parks and natural environments. • Students expressed "desire" to change their environmental behaviors. • Students' interpersonal communication and public speaking skills increased. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> • None
Headlands Institute DONE	students, 4 th – 6 th grades n is unknown	<ul style="list-style-type: none"> • Time Period: Aug. 2007 (?) to July 2007 • No clear evaluation goals 	<ul style="list-style-type: none"> • Evaluator: in house ?? • pre/post watershed mapping activity; pre: four schools; post: one school, so didn't analyze • student projects: no assessment • observations: no form 	<p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> • None
Highland/MPUSD Project Frogs DONE	4 th grade students, n = 72 & 5 th grade students, n = 75	<ul style="list-style-type: none"> • Time Period: 7/1/05 to 6/30/07 (Jan. – Jun. 2007) • Goal: measure student understanding of the watershed and local ecosystems before the project and after the project; see if the project is having any effect on their overall science competency and on STAR scores 	<ul style="list-style-type: none"> • Evaluator: school staff & Pinnacles staff • pre-post test • watershed concept map • letters students write to the Pinnacles • final student projects • STAR science test scores 	<ul style="list-style-type: none"> • Students show increase in knowledge about frogs and water testing from pre to post. • Students showed some increase in STAR scores, however, relationship to project is inconclusive. • Letters were better than the previous year's [however, no assessment technique provided so difficult to judge]. • No data from projects. • No data on concept maps. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> • None really

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
MERITO SB DONE	Teachers 4 th -8 th n = 11 Students, n = 330	<ul style="list-style-type: none"> Time Period: Aug. 2006 – July 2007 teacher satisfaction & support re: PD & materials impact of teacher PD on students 	<ul style="list-style-type: none"> Evaluator: ?? Teachers: pre, mid & post workshop surveys teacher pre-survey on 1st wkshp day for demographics mid-term survey to gain formative data on wkshp and materials (n = 7) post-survey to determine use of materials and intent to repeat program (n = 5) Students of 11 PD teachers took pre & post test, report says n = 330 [unusual that all pre & post were returned] Student journals w/ observations, thoughts, drawings, etc. 	<ul style="list-style-type: none"> Teachers gained resources and ideas how to teach MERITO lessons. They stated they gained new knowledge about the Sanctuary. The also offered suggestions for improving the materials, PD workshop and field experiences. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> All students' classes showed an increase pre to post [although could be developmental]. Based on combined student results [which is problematic], average pre-test score was 16.4 and post-test score was 26.3 (out of possible 33.5). [Possibly stat significant, but no tests run]
Marine Mammal Center (MMC) DONE	9 th to 12 th grade students in 5 schools, n = 204 [report doesn't provide data on number of students tested and grade levels]	<ul style="list-style-type: none"> Time Period: Aug. 2006 to July 2007, 8-week session [looks like there are 2 cohorts: a fall group and a spring group] Goal: to measure the impact of the program on students. i.e., does it increase their environmental awareness and knowledge of marine science and are they more likely to become ocean stewards or pursue a marine career. 	<ul style="list-style-type: none"> Evaluator: in-house this year, will contract next year pre / post-test of students' knowledge grading rubric for student assignments teacher / student surveys of field trips [Survey forms had a 1 to 4 rating scale, yet report says data are qualitative?? They were too lengthy and they didn't always get data or the type of data they wanted] 	<ul style="list-style-type: none"> Spring group was more aware of MMC at the beginning than the fall group (82% vs. 62%). Change in those who could ID the mission of the MMC (fall: 30 to 56%; spring: 63 to 82%). More students could ID different marine mammals after the spring program (70% vs. 84%) vs. the fall program (27% to 20%). {Note: different response choices in fall & spring] Change in those who could ID marine careers (fall: 19 to 36%; spring: 61% to 83%). {Note: different response choices in fall & spring] On spring post-surveys students responded "yes," the program gave them new experiences (95%), a better understanding of the marine environment (100%), and changed their view of the marine

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
				<p>environment (100%). Data for fall were similar.</p> <ul style="list-style-type: none"> Use of rubric for assignments showed that most students weren't doing the assignments. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Spring survey showed increase pre to post in % who could ID local marine sanctuaries (38% to 58%), but showed a decrease in % of who could ID "role" of sanctuaries (86% to 75%). Changes in those who would devote time and energy to protect SFBay & ocean (fall: not on pre, 94% on post; spring: 77% on pre to 82% on post). Between 95 to 100% on spring & fall pre and post said "true" to: 1) my actions could impact SFBay, 2) my actions could impact the Pacific Ocean, and 3) I care about the environment.
<p>Oak Grove School Once Upon a Wetland</p> <p>DONE</p>	<p>3 schools: 1) preK to 12, n = 205 2) K-6, n = 395 3) HS, n = 40</p> <p>Teachers, n = 24 (7 completed summative survey)</p>	<ul style="list-style-type: none"> Time Period: school year Aug. 2006 to July 2007 Eval to measure: <ul style="list-style-type: none"> 1) students and teachers knowledge about local watershed; 2) awareness of importance & value of wetlands and role in healthy watershed; 3) awareness about importance & value of healthy watershed & role in ocean; 4) sense of community ownership & shared responsibility for watershed; 5) confidence, hope & empowerment regarding self actions. 	<ul style="list-style-type: none"> Evaluator: in-house?? formative teacher survey (1 to 2 months after program started) summative teacher survey (end of school year) K-3 student survey, online (n = 21) 4th – 6th student survey, online (n = 40 – 50 ??) 7th to HS student survey, online (n = 24) 	<ul style="list-style-type: none"> Data not usable because results are post-test only. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Nothing usable.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Oakland Museum DONE	Jr. Guides, 5 th grade, n = 96	<ul style="list-style-type: none"> Time Period: schoolyear 2006 - 2007 (8 months of gallery touring & field trips) Eval Goals: 1) What do students gain from field & classroom experiences, that is, how does level of knowledge @ watershed change; 2) Do students' knowledge and leadership abilities increase?; 3) Do students' knowledge of impacts on watershed increase? 	<ul style="list-style-type: none"> Evaluator: in-house?? pre/post field trip drawings of watershed during saltmarsh trip (n = 74) observations of students giving 5-6 min. tours (n = 35 by formal observers; n = 69 by three classroom teachers) 	<ul style="list-style-type: none"> Observations showed that students giving tours were only somewhat knowledgeable and able to deliver information about water cycle, watersheds, and conservation. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> Pre/post drawings showed an overall increase in saltmarsh knowledge for 2 of 3 schools. Third school showed a decrease in knowledge (received the post-test two months after the field trip and had in-school management issues).
Randall Museum WaterLife DONE	local elem students in afterschool art & science program 7 sessions + 2 field trips, also overnight or two-week day camp n = 60	<ul style="list-style-type: none"> Time Period: School year 2006 – 2007, & summer 2007(??) 	<ul style="list-style-type: none"> Evaluator: in house ?? Observations (formative) Observations were formative: helped program providers see what was working and what wasn't. No formal way of gathering observation data Surveyed small group of students 	<p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> Stated that afterschool program was successful in increasing student knowledge of water, watershed, animals that live there and desire to protect. [However, there's little data provided to support these conclusions.]
Save the Bay DONE	middle & high school students teacher PD n = 12 classes, 300 students & 35 teachers Eval focus: 2 of 3 underserved schools receiving full program, high school only n = 19 Alameda & n = 20 Oakland	<ul style="list-style-type: none"> Time Period: Sept. 2006 – Nov. 2007 Goals: teach students @ SF Bay ecosystem while encouraging teamwork, positive actions and ongoing interest in the Bay; help teachers integrate outdoor experiences in lessons Eval: to assess the impact of program on participants 	<ul style="list-style-type: none"> Evaluator: Consultant student pre/post field trip assessment teacher post-trip form 	<ul style="list-style-type: none"> Little change in environ behaviors from pre to post. Little change in attitudes of Alameda students pre to post; greater change in Oakland students. Pre to post students said they knew more about the Bay. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> On pre, 100% of students from Oakland defined watershed correctly. The depth of knowledge regarding function and location increased post. On pre, 50% of Alameda students defined watershed correctly. They showed largest gains (more than double) on the post.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Save the Whales DONE	<p>In 2007, 11th graders, n = 36; 6th graders, n = 16 (5 were repeats)</p> <p>In 2006, 5th & 6th graders, n = 39 (some repeats)</p> <p>Participation by elem. students was voluntary; by high school students was mandatory</p>	<ul style="list-style-type: none"> Time Period: Aug. 2006 to June 2007 (schoolyear). Eval goals: survey 1 to assess knowledge of MBNMS, sewage treatment, storm drains, where water goes as enters storm drains, types of pollution and how to prevent storm drain pollution; survey 2 to assess mastery of scientific concepts related to water monitoring. 	<ul style="list-style-type: none"> Evaluator: consultants: Applied Survey Research pre/post, two surveys: 1) Storm Drain Pollution & 2) Water Monitoring [not sure why they were separate] pre given in Sept.; post given in May 	<ul style="list-style-type: none"> On Water Monitoring 2007 test, 6th grade showed increase in knowledge from pre to post: 39% vs. 71% correct [no calculation of significance]. On Water Monitoring 2007 test, 11th grade showed increase in knowledge from pre to post: 65% vs. 85% correct [no calculation of significance]. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> Overall, students knew more about local watershed and sanctuary on post. On Storm Drain Pollution 2007 test, 6th grade showed increase in knowledge from pre to post: 70% vs. 82% correct [no calculation of significance]. On Storm Drain Pollution 2007 test, 11th grade showed decrease in knowledge from pre to post: 76% vs. 74% correct [no calculation of significance, but probably isn't]. On Storm Drain Pollution 2006 test, 6th grade showed increase in knowledge from pre to post: 31% vs. 71% correct [no calculation of significance]. On Storm Drain Pollution 2006 test, 5th grade showed increase in knowledge from pre to post: 44% vs. 67% correct [no calculation of significance].
SCRCD Watershed Cruz'n DONE	<p>teachers, n = 55 (12 from Outdoor Sci Camp and not included in eval)</p> <p>K-5 (57% / 43%) 6-8 (13% / 38%)</p>	<ul style="list-style-type: none"> Time Period: Aug. 2006-May 2007 PD program: 8 workshops held during the school year Goal: increase depth and breadth of ee in 4-12 classrooms & solicit comments on activity guide Describe front-end, formative & 	<ul style="list-style-type: none"> Evaluator: ?? pre-workshop survey (n = 37) post-workshop survey up to 4 months after the wkshp (n = 21) field observations (n = 2) 	<ul style="list-style-type: none"> [Problem with results & conclusions because pre/post data aren't paired and so results aren't comparable.] Seven teachers (33%) had not taught any of the activities [likely typical].

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
	HS (19% / 14%) K-12 (3% / 5%) Other (9%) [Above % of teachers by grade show the pre group was not the same as the post group]	summative, although most of the data collected was formative	<ul style="list-style-type: none"> requests for funding for materials (n = 12) 	<ul style="list-style-type: none"> The more activities the teachers did, the higher they rated them. 43% of teachers rated the workshop as excellent; 52% rated it as good [low ratings for teachers] <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> None
Sea Center, SB Nat. Hist. Mus. Channel Watch DONE	teachers: return n= 4 (no way to calculate return rate) students: no numbers provided	<ul style="list-style-type: none"> Time Period: Aug. 2006 – Jul. 2007 Eval Goals: student watershed & runoff knowledge, conservation activities teacher satisfaction, participant satisfaction 	<ul style="list-style-type: none"> Evaluator: ?? student pre-visit (onsite) & post-visit (at school, mailed back) surveys teachers post-visit survey (onsite preferred) 	<ul style="list-style-type: none"> Teachers' rating of the program was high [which is typical of teachers]. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> Student results show "significant" before-after improvement [however, as presented in the report, it's problematic – see notes in next column].
SFSU Conservation Connection DONE	no n provided for any of the 3 groups surveyed 3 rd – 5 th grade students??	<ul style="list-style-type: none"> Time Period: Aug. 2006 to Aug. 2007 (four field trips during school year) Eval goals: 1) What's the impact of the program on participants becoming stewards of local watershed and 2) What's their understanding of human impacts on ecosystem. In addition, report provides an [ambitious] set of specific satisfaction, knowledge and stewardship goals. 	<ul style="list-style-type: none"> Evaluator: in-house?? satisfaction survey of parent chaperones satisfaction survey of teachers pre / post survey of students field trip test and attitude surveys of students on each of three field trips 	<ul style="list-style-type: none"> Pre / post test results showed a 14% increase in knowledge. Field surveys showed increases in attitudes toward environment and conservation [I can't figure out where the data is or how they got these results] Teachers were 95% satisfied with 1st field trip; 82% satisfied with 2nd field trip and 66% satisfied with 3rd trip. 81% agreed that field trips help with science; 84% agreed that they wanted to care for the environment and park after field trips [no pre data]. <p>Watershed / Sanctuary data?</p> <ul style="list-style-type: none"> none

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
SFUSD SF-Rocks DONE	high school students, n = 15	<ul style="list-style-type: none"> Time Period: pre Aug. 2006 – post May 2007 Objectives: improve student skills doing research study; increase knowledge of watershed to sanctuaries; link to social justice students have designed & conducted a 1-yr watershed water quality study 	<ul style="list-style-type: none"> Evaluator: ?? pre/post survey of students: open-ended questions graded with a 0-4 scale rubric 	<ul style="list-style-type: none"> Students' knowledge increased 75 to 98% based on pre/post test results <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> On average, students' knowledge scores increased from a mean of less than 1 to greater than 3.6 [probably all statistically significant] when asked questions about watershed, estuary, wetlands and water pollution.
TEAWET (Teacher Enrich-ment Adventure in Watershed Ed) DONE	13 teachers (of the 20 recruited), grades 5 thru 8	<ul style="list-style-type: none"> Time Period: Sept. '06 to July '07 to determine the extent to which teachers understand and engage in inquiry-based, watershed education in the classroom and in the field, and to determine their training needs PD: 8 days + 1 makeup during school year Set specific targets: 75% will do XX. 	<ul style="list-style-type: none"> Evaluator: team members and/or grad student?? front-end: online teacher pre survey (n = 12) formative: ongoing feedback observations of training sessions summative: post surveys (n = 6), with 82 questions [too many!!] focus group (6 teachers) 	<ul style="list-style-type: none"> not really <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> Questions were on the survey, but report only provided data on defining a watershed. Results showed some increase in knowledge.
Ventana DONE	students, n = 170 Eval: n = 43 pre-surveys, n = 31 post-surveys journals, n = 70	<ul style="list-style-type: none"> Time Period: Sept. 2006 to Aug. 2007 Goals: Did their knowledge and awareness of nature increase?; Did their attitude regarding nature change? 	<ul style="list-style-type: none"> Evaluator: in house?? pre/post survey of students student journals instructor observations 	<ul style="list-style-type: none"> Student ability to recognize tracks, common flora and fauna, use field guides and binoculars, and formulate hypothesis all improved, with students who attended more classes progressing more quickly. <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> On pre, 14% said yes and post 48% said yes, they lived in MBay watershed. On pre, 91% were not able to describe the MBNMS; post, 22% had excellent & 37% good comprehension of MBNMS. When asked what is a watershed, on pre 14% had good to excellent comprehension; on post, 59% had good to excellent.

Project	Audience	Evaluation Description	Eval Methods/Instruments	Findings/Results
Wilderness Way DONE	middle school teachers (4) and students (2 classes, n = 50)	<ul style="list-style-type: none"> Time Period: Aug. 2006 - Jul. 2007 Used meetings with teachers and discussions (surveys?) with students to determine what they did as part of their salmonid project and to a limited degree what they thought about what they did 	<ul style="list-style-type: none"> Evaluator: consultant(??) Pre/post surveys of students: different questions on each; not comparable Teachers' scoring of journals, artwork and other activities (although no rubrics or scoring protocols provided) or student scores provided 	<ul style="list-style-type: none"> Said they provided "meaningful" experiences, but provided output rather than outcome data. [Not sure how much of the outcome data was derived from the questions asked.] [What the students did (raising & releasing fish) probably had a positive impact on the environment, but the evaluation doesn't say much about the impact on the teachers or students.] <p>Watershed/Sanctuary data?</p> <ul style="list-style-type: none"> None